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RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/042,894A

DATE: 06/05/2002 TIME: 09:54:24

Input Set : A:\1286 AMD SEQLIST.TXT
Output Set: N:\CRF3\06052002\J042894A.raw

66

4 <110> APPLICANT: Shi, Jinrui

4 <110> APPLICANT: Shi, Jihrui 5 Beach, Larry 6 Wang, Hongyu

Wang, Hongyu Rafalski, Antoni J.

8 Cahoon, Rebecca E.

10 <120> TITLE OF INVENTION: Novel Inositol Polyphosphate Kinase

13 <130> FILE REFERENCE: 1286

, 15 <140> CURRENT APPLICATION NUMBER: US 10/042,894A 16 <141> CURRENT FILING DATE: 2002-01-09

18 <150> PRIOR APPLICATION NUMBER: US 60/261,465

19 <151> PRIOR FILING DATE: 2001-01-12

21 <160> NUMBER OF SEQ ID NOS: 37

23 <170> SOFTWARE: FastSEQ for Windows Version 4.0

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28 <213> ORGANISM: Zea mays

30 <220> FEATURE: 31 <221> NAME/KEY: CDS

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37 Met Pro Asp Lo

40 gtc gcc ggt cac cgc gcc tcc gcc agc aag ctg ggc ccg ctc atc gac  $\,$  141 Val Ala Gly His Arg Ala Ser Ala Ser Lys Leu Gly Pro Leu Ile Asp

42 15 20 44 qqc tee qqc ete tte tac aaq eeq ete caq qcc qqc qqc eqt qqq qaq 20

45 Gly Ser Gly Leu Phe Tyr Lys Pro Leu Gln Ala Gly Asp Arg Gly Glu
46 30 35

48 cac gag gtc gcc ttc tat gag gcg ttc tcc gcc cac gcc gcc gtc ccg 257

49 His Glu Val Ala Phe Tyr Glu Ala Phe Ser Ala His Ala Ala Val Pro
50 45 55
52 gcc egg atc ega gac acc ttc ttc ecc egg ttc eac egg acc ega ctc 305

52 gcc egc atc ega gac acc ttc ttc ecc egg ttc eac ggc acg ega etc 30 53 Ala Arg Ile Arg Asp Thr Phe Phe Pro Arg Phe His Gly Thr Arg Leu 54 60 70

56 ctc ccc acc gag gcg cag ccc ggg gag ccg cat ccg cac ctc gtc ctc 353 57 Leu Pro Thr Glu Ala Gln Pro Gly Glu Pro His Pro His Leu Val Leu

67 Leu Pro Thr Glu Ala Gln Pro Gly Glu Pro His Pro His Leu Val Leu 68 75 80 85 90

60 gac gac etc etc geg ggg ttt gag geg ecc tge gte gea gac atc aag 401 61 Asp Asp Leu Leu Ala Gly Phe Glu Ala Pro Cys Val Ala Asp Ile Lys

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## Input Set : A:\1286 AMD SEQLIST.TXT Output Set: N:\CRF3\06052002\J042894A.raw

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66				110					115					120			
									acc								497
69	Lys	Tyr	Leu	Ala	Lys	Asp	Arg	G1y	Thr	Thr	Ser	Val	Leu	Leu	Gly	Phe	
70			125					130					135				
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	Arg		Leu	Arg	Pro	Ser		Arg	Pro	Arg	Gly	Arg	Arg	Val	Ala	Asp	
74		140					145					150					
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77	Gly	Ala	Pro	Gly	G1y	Glu	Gly	$\mathbf{T}\mathbf{y}\mathbf{r}$	G1y	His	Arg	Arg	Arg	Pro	Pro	Arg	
78	155					160					165					170	
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81	Ala	Pro	Ala	Leu	Arg	Va1	I1e	Arg	Leu	Pro	Thr	Arg	Gly	Trp	Thr	Ala	
82					175					180					185		
84	cgc	tcg	cgg	cgg	cgg	tgt	acg	gag	gaa	aag	gtg	gag	tcţ	tgt	cac	agc	689
85	Arg	Ser	Arg	Arg	Arg	Cys	Thr	G1u	G1u	Lys	Va1	G1u	Ser	Cys	His	Ser	
86				190					195					200			
88	tgc	gcg	agc	tca	agg	cat	ggt	tgg	agg	agc	aga	ctc	tgt	tcc	act	tct	737
89	Cys	Ala	Ser	Ser	Arg	His	Gly	Trp	Arg	Ser	Arg	Leu	Cys	Ser	Thr	Ser	
90			205					210					215				
92	act	cgg	cgt	cga	ttc	ttc	tgg	gct	atg	atg	ctg	ctg	cag	tcg	cag	cag	785
93	Thr	Arg	Arg	Arg	Phe	Phe	Trp	A1a	Met	Met	Leu	Leu	Gln	Ser	G1n	G1n	
94		220					225					230					
96	gcg	gag	gtg	ggg	gtg	ggg	taa	cagt	gaag	ct g	gtgg	jactt	t go	ccat	gtgg	ſ	836
97	Ala	Glu	Val	Gly	Val	Gly	*										
98	235					240											
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103	cag	cagt	gag	gatg	aaga	tg a	cagt	agto	ja gg	aaag	ttcg	gat	gatg	agc	caac	aaaagt	1076
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115	Ser	A1a	Ser	Lys	Leu	G1y	Pro	Leu	I1e	Asp	G1y	Ser	G1y	Leu	Phe	Tyr	
116				20					25				-	30		_	
117	Lys	Pro	Leu	G1n	A1a	G1y	Asp	Arg	G1y	G1u	His	G1u	Va1	A1a	Phe	Tyr	
118			35					40					45			-	
119	G1u	A1a	Phe	Ser	Ala	His	Ala	A1a	Va1	Pro	Ala	Arg	Ile	Arg	Asp	Thr	
120		50					55					60		_	_		
121	Phe	Phe	Pro	Arg	Phe	His	Gly	Thr	Arg	Leu	Leu	Pro	Thr	G1u	Ala	G1n	
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## Input Set : A:\1286 AMD SEQLIST.TXT Output Set: N:\CRF3\06052002\J042894A.raw

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126	Pro			100	D	a1	D	m		*1 a	T	m	T av		Tue	Acn	
128			115					120					125				
129	Arg	Gly	Thr	Thr	Ser	Val		Leu	Gly	Phe	Arg		Leu	Arg	Pro	Ser	
130		130					135	_				140	_				
	Arg	Arg	Pro	Arg	Gly		Arg	Val	Ala	Asp		Ala	Pro	Gly	Gly		
	145					150					155	_		_	_	160	
	Gly	Tyr	Gly	His		Arg	Arg	Pro	Pro		Ala	Pro	Ala	Leu		Val	
134		_	_	_	165			m	m 1	170			3	7 200	175	Cura	
	Ile	Arg	Leu		Thr	Arg	GIĀ	Trp	185	Ala	Arg	ser	Arg	190	ALG	cys	
136		a1	a1	180	17- 7	a1		a		Con	0	71-	cor		Ara	uic	
	Thr	GIu		Lys	val	GIU	ser	200	HIS	ser	Cys	Ald	205	ser	Arg	nis	
138	Gly	<b></b>	195	a		*	a		mbo	Con	mbm	A ra		A ra	Dho	Dho	
		210	Arg	ser	Arg	Leu	215	ser	THE	ser	1111	220	MIG	MIG	FIIC	rne	
140	Trp		Wat	Wat	Lou	T OIL		Cor	Cln.	Gln.	λla		Val	G1 v	Va1	Glv	
	225	мта	met	met	ьец	230	GIII	Ser	GIH	GIII	235	GIU	· uı	OI,	· u I	240	
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157																	
																l	
		ctc													tcc	gcc	106
T 60	gac Asp												Arg		tcc	gcc	106
161	Asp	Leu	His 5	Pro	Pro	Glu	His	Gln 10	Val	Ala	Gly	His	Arg 15	Ala	tcc Ser	gcc Ala	
161 163	Asp	Leu aag	His 5 ccg	Pro	Pro	Glu ctc	His atc	Gln 10 gac	Val ggc	Ala tcc	Gly ggc	His ctc	Arg 15 ttc	Ala tac	tcc Ser aag	gcc Ala ccg	106
161 163 164	Asp agc Ser	Leu aag Lys	His 5 ccg	Pro	Pro	Glu ctc	His atc Ile	Gln 10 gac	Val ggc	Ala tcc	Gly ggc	His ctc Leu	Arg 15 ttc	Ala tac	tcc Ser aag	gcc Ala ccg	
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161 163 164 165 167	Asp agc Ser	Leu aag Lys 20 cag	His 5 ccg Pro	Pro ggc Gly ggc	Pro ccg Pro gac	Glu ctc Leu cgt	His atc Ile 25 ggg	Gln 10 gac Asp	yal ggc Gly cac	tcc Ser gag	ggc Gly gtc	His ctc Leu 30 gct	15 ttc Phe	Ala tac Tyr tat	tcc Ser aag Lys gag	gcc Ala ccg Pro	
161 163 164 165 167	agc Ser ctc Leu	Leu aag Lys 20 cag	His 5 ccg Pro	Pro ggc Gly ggc	Pro ccg Pro gac	Glu ctc Leu cgt Arg	His atc Ile 25 ggg	Gln 10 gac Asp	yal ggc Gly cac	tcc Ser gag	ggc Gly gtc val	His ctc Leu 30 gct	15 ttc Phe	Ala tac Tyr tat	tcc Ser aag Lys gag	gcc Ala ccg Pro gcg Ala	154
161 163 164 165 167 168	agc Ser ctc Leu 35	Leu aag Lys 20 cag Gln	His 5 ccg Pro gcc Ala	ggc Gly ggc Gly	ecg Pro gac Asp	Glu ctc Leu cgt Arg 40	His atc Ile 25 ggg Gly	Gln 10 gac Asp gag Glu	yal ggc Gly cac His	tcc Ser gag Glu	gge Gly gtc Val 45	ttc Leu 30 gct Ala	Arg 15 ttc Phe ttc Phe	tac Tyr tat Tyr	tcc Ser aag Lys gag Glu	gcc Ala ccg Pro gcg Ala 50	154 202
161 163 164 165 167 168 169	agc Ser ctc Leu 35	Leu aag Lys 20 cag Gln	His 5 ccg Pro gcc Ala	ggc Gly ggc Gly cac	ecg Pro gac Asp	ctc Leu cgt Arg 40 gcc	His atc Ile 25 ggg Gly	Gln 10 gac Asp gag Glu ccg	yal ggc Gly cac His	Ala tcc Ser gag Glu	ggc Gly gtc Val 45 atc	ttc Leu 30 gct Ala	Arg 15 ttc Phe ttc Phe	tac Tyr tat Tyr	tcc Ser aag Lys gag Glu ttc	gcc Ala. ccg Pro gcg Ala 50 ttc	154
161 163 164 165 167 168 169 171	agc Ser ctc Leu 35 ttc	Leu aag Lys 20 cag Gln	His 5 ccg Pro gcc Ala	ggc Gly ggc Gly cac	ccg Pro gac Asp gcc	ctc Leu cgt Arg 40 gcc	His atc Ile 25 ggg Gly	Gln 10 gac Asp gag Glu ccg	yal ggc Gly cac His	tcc Ser gag Glu cgc Arg	ggc Gly gtc Val 45 atc	ttc Leu 30 gct Ala	Arg 15 ttc Phe ttc Phe	tac Tyr tat Tyr	tcc Ser aag Lys gag Glu ttc Phe	gcc Ala. ccg Pro gcg Ala 50 ttc	154 202
161 163 164 165 167 168 169 171 172	agc Ser ctc Leu 35 ttc	Leu aag Lys 20 cag Gln tcc Ser	His 5 ccg Pro gcc Ala gcc Ala	ggc Gly ggc Gly cac His	Pro ccg Pro gac Asp gcc Ala 55	ctc Leu cgt Arg 40 gcc Ala	atc Ile 25 ggg Gly gtc Val	Gln 10 gac Asp gag Glu ccg Pro	yal ggc Gly cac His gcc	tcc Ser gag Glu cgc Arg 60	ggc Gly gtc Val 45 atc Ile	ttc Leu 30 gct Ala cga Arg	15 ttc Phe ttc Phe gac Asp	tac Tyr tat Tyr acc Thr	tcc Ser aag Lys gag Glu ttc Phe 65	gcc Ala ccg Pro gcg Ala 50 ttc Phe	154 202 250
161 163 164 165 167 168 171 172 173	agc Ser ctc Leu 35 ttc Phe	Leu aag Lys 20 cag Gln tcc Ser	His 5 ccg Pro gcc Ala gcc Ala	ggc Gly ggc Gly cac His	Pro ccg Pro gac Asp gcc Ala 55	ctc Leu cgt Arg 40 gcc Ala	His atc Ile 25 ggg Gly gtc Val	Gln 10 gac Asp gag Glu ccg Pro	yal ggc Gly cac His gcc Ala	tcc ser gag Glu cgc Arg 60 ccc	ggc Gly gtc Val 45 atc Ile	ttc Leu 30 gct Ala cga Arg	Arg 15 ttc Phe ttc Phe gac Asp	tac Tyr tat Tyr acc Thr	tcc Ser aag Lys gag Glu ttc Phe 65 ccc	gcc Ala. ccg Pro gcg Ala 50 ttc Phe	154 202
161 163 164 165 167 168 169 171 172 173 175	agc Ser ctc Leu 35 ttc Phe ccc	Leu aag Lys 20 cag Gln tcc Ser	His 5 ccg Pro gcc Ala gcc Ala	ggc Gly ggc Gly cac His	Pro ccg Pro gac Asp gcc Ala 55	ctc Leu cgt Arg 40 gcc Ala	His atc Ile 25 ggg Gly gtc Val	Gln 10 gac Asp gag Glu ccg Pro	yal ggc Gly cac His gcc Ala ctc Leu	tcc ser gag Glu cgc Arg 60 ccc	ggc Gly gtc Val 45 atc Ile	ttc Leu 30 gct Ala cga Arg	Arg 15 ttc Phe ttc Phe gac Asp	Ala tac Tyr tat Tyr acc Thr cag Gln	tcc Ser aag Lys gag Glu ttc Phe 65 ccc	gcc Ala. ccg Pro gcg Ala 50 ttc Phe	154 202 250
161 163 164 165 167 168 171 172 173 175	agc Ser ctc Leu 35 ttc Phe ccc Pro	Leu aag Lys 20 cag Gln tcc Ser cgg Arg	His 5 ccg Pro gcc Ala gcc Ala ttc Phe	ggc Gly ggc Gly cac His cac	gac Asp gcc Ala 55 ggc Gly	ctc Leu cgt Arg 40 gcc Ala acg	His atc Ile 25 ggg Gly gtc Val cga Arg	Gln 10 gac Asp gag Glu ccg Pro ctc Leu	yal ggc Gly cac His gcc Ala ctc Leu 75	tcc Ser gag Glu cgc Arg 60 ccc Pro	ggc Gly gtc Val 45 atc Ile acc	ctc Leu 30 gct Ala cga Arg gag Glu	Arg 15 ttc Phe ttc Phe gac Asp gcg Ala	Ala tac Tyr tat Tyr acc Thr cag Gln 80	tcc Ser aag Lys gag Glu ttc Phe 65 ccc Pro	gcc Ala. ccg Pro gcg Ala 50 ttc Phe	154 202 250 298
161 163 164 165 168 171 172 173 175 176	agc Ser ctc Leu 35 ttc Phe ccc Pro	Leu aag Lys 20 cag Gln tcc Ser cgg Arg	His 5 ccg Pro gcc Ala gcc Ala ttc Phe cat	ggc Gly ggc Gly cac His cac	ccg Pro gac Asp gcc Ala 55 ggc Gly	ctc Leu cgt Arg 40 gcc Ala acg Thr	His atc Ile 25 ggg Gly gtc Val cga Arg	Gln 10 gac Asp gag Glu ccg Pro ctc Leu	yal ggc Gly cac His gcc Ala ctc Leu 75 gac	tcc ser gag Glu cgc Arg 60 ccc Pro	ggc Gly gtc Val 45 atc Ile acc Thr	ttc Leu 30 gct Ala cga Arg gag Glu	Arg 15 ttc Phe ttc Phe gac Asp gcg Ala	Ala tac Tyr tat Tyr acc Thr cag Gln 80 gga	tcc Ser aag Lys gag Glu ttc Phe 65 ccc Pro	gcc Ala. ccg Pro gcg Ala 50 ttc Phe ggg Gly	154 202 250
161 163 164 165 168 171 172 173 175 176	agc Ser ctc Leu 35 ttc Phe ccc Pro	Leu aag Lys 20 cag Gln tcc Ser cgg Arg	His 5 ccg Pro gcc Ala gcc Ala ttc Phe cat	ggc Gly ggc Gly cac His cac	ccg Pro gac Asp gcc Ala 55 ggc Gly	ctc Leu cgt Arg 40 gcc Ala acg Thr	His atc Ile 25 ggg Gly gtc Val cga Arg	Gln 10 gac Asp gag Glu ccg Pro ctc Leu	yal ggc Gly cac His gcc Ala ctc Leu 75 gac	tcc ser gag Glu cgc Arg 60 ccc Pro	ggc Gly gtc Val 45 atc Ile acc Thr	ttc Leu 30 gct Ala cga Arg gag Glu	Arg 15 ttc Phe ttc Phe gac Asp gcg Ala	Ala tac Tyr tat Tyr acc Thr cag Gln 80 gga	tcc Ser aag Lys gag Glu ttc Phe 65 ccc Pro	gcc Ala. ccg Pro gcg Ala 50 ttc Phe ggg Gly	154 202 250 298

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187 agt tcg cgg gag ccc tac atc gcc aag tgc ctc gcc atg gac cgc ggg 94 442 188 Ser Ser Pro Glu Pro Tyr Ile Ala Lys Cys Leu Ala Met Asp Arg Gly 189 115 120 155 130 191 acc acg agc gtt ctg ctc ggg ttc cgc gtc tcc ggc gtc cgg gtc gtc	184	Ala		Cys	Val	Ala	Asp		Lys	Ile	Gly	Ala	Ile	Thr	Trp	Pro	Pro	
188 Ser Ser Pro Glu Pro Tyr Tle Ala Lys Cys Leu Ala Met Asp Arg Gly 189 115 120 125 130 191 acc acg agc gtt ctg ctc gga ttc cgc gtc tcc ggc gtc cga gtc gtc cgc ggc gtr Thr Thr Ser Val Leu Leu Gly Phe Arg Val Ser Gly Val Arg Val Val 193 135 140 145 145 145 145 145 145 145 145 145 145																		
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192 Thr Thr Ser Val Leu Leu Gly Phe Arg Val Ser Gly Val Arg Val Val   193																		
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195	192	Thr	Thr	Ser	Val	Leú	Leu	G1y	Phe	Arg	Val	Ser	Gly	Val	Arg	Val	Val	
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236 50 55 60 237 Phe Phe Pro Arg Phe His Gly Thr Arg Leu Leu Pro Thr Glu Ala Gln 238 65 70 75 80 239 Pro Gly Glu Pro His Pro His Leu Val Leu Asp Asp Leu Leu Ala Gly 240 85 90 95 241 Phe Glu Ala Pro Cys Val Ala Asp Ile Lys Ile Gly Ala Ile Thr Trp	215 216 219 220 221 223 224 225 226 228 229 230 231 232 233	Leu tgg: ggc: <21: <21: <21: <40: Met 1 Ser	* tgga tctg tggg 0> S: 1> Li 2> T' 3> OI 0> S: Pro	ett deta general ett de	tgcco gctga ttct1 O NO H: 22 PRT ISM: NCE: Leu Lys 20	catgiatcas taa : 4 27. Zea 4 His Pro	may:	ecgae tegti	Glu Leu	His	ggtgg gggg attgi Gln 10 Asp	val	tgad agad Ala Ser	Gly Val	His Leu	Arg 15 Phe	gggeg egeage Ala Tyr	846 906
237 Phe Phe Pro Arg Phe His Gly Thr Arg Leu Leu Pro Thr Glu Ala Gln 238 65 70 80 239 Pro Gly Glu Pro His Pro His Leu Val Leu Asp Asp Leu Leu Ala Gly 240 85 90 95 241 Phe Glu Ala Pro Cys Val Ala Asp Ile Lys Ile Gly Ala Ile Thr Trp	215 216 219 220 221 223 224 225 226 228 229 230 231 232 233 234	Leu tggg ggc <21: <21: <40: Met 1 Ser Lys	tggae tctge tggge 0> S: 1> L: 2> T: 3> O: 0> S: Pro Ala	ett i	tgcco gctga ttct1 0 NO H: 22 PRT ISM: NCE: Leu Lys 20 Gln	gca g catgratcas caa: 4 27. Zea 4 His 5 Pro	may: Pro Gly	Pro Asp	Glu Leu Arg	His Ile 25 Gly	ggtgg gggg attg Gln 10 Asp	val Gly	Ala Ser Glu	Gly Gly Val	His Leu 30	Arg 15 Phe	gggeg egeage Ala Tyr Tyr	846 906
238 65 70 75 80 239 Pro Gly Glu Pro His Pro His Leu Val Leu Asp Asp Leu Leu Ala Gly 240 85 90 95 241 Phe Glu Ala Pro Cys Val Ala Asp Ile Lys Ile Gly Ala Ile Thr Trp	215 216 219 220 221 223 224 225 226 228 229 230 231 232 233 234 235	Leu tggg ggc <21: <21: <40: Met 1 Ser Lys	tggae tctge tggge 0> S: 1> Li 2> T' 3> Oi 0> S: Pro Ala Pro	ett i	tgcco gctga ttct1 0 NO H: 22 PRT ISM: NCE: Leu Lys 20 Gln	gca g catgratcas caa: 4 27. Zea 4 His 5 Pro	may: Pro Gly	Pro Asp	Glu Leu Arg	His Ile 25 Gly	ggtgg gggg attg Gln 10 Asp	val Gly	Ala Ser Glu Arg	Gly Gly Val	His Leu 30	Arg 15 Phe	gggeg egeage Ala Tyr Tyr	846 906
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	215 216 219 220 221 223 224 225 226 228 229 230 231 232 232 233 234 235 237 238 239 240	Leu tggggccttf(<211	ttggattctgtggg; 0> S: 1> LL 2> T0 0> S: Pro Ala Pro Ala 50 Phe Gly	cett for the cett	tgccc gctga ttcti ) NO of: 22 PRT ISM: NCE: Leu Lys 20 Gln Ser Arg	gca (catgiatcaa; 4 27. Zea 4 His 5 Pro Ala Ala Phe His 85	may: Pro Gly His His 70 Pro	Pro Asp Ala 55 Gly	Glu Leu Arg 40 Ala Thr	His Ile 25 Gly Val Arg	Gln 10 Asp Glu Pro Leu 90	Val Gly His Ala Leu 75 Asp	Ala Ser Glu Arg 60 Pro	Gly Gly Val 45 Ile Thr	His Leu 30 Ala Arg Glu	Arg 15 Phe Asp Ala 41a	Ala Tyr Tyr Thr Gln 80 Gly	846 906

243 Pro Pro Ser Ser Pro Glu Pro Tyr Ile Ala Lys Cys Leu Ala Met Asp

DATE: 06/05/2002 TIME: 09:54:24

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246	Val	130				a1		17- 1	m	7	mboo		1	Dro	C1n	17 n 1	
		Val	Val	Pro	GLU	150	Ala	vaı	пр	AIG	155	Gru	Arg	PIO	GIU	160	
248					m1		a1	17- 1		3		T 011	1.00	1	There		
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250	_	_		_	165				a1					<b>a</b> 1		C1.,	
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252				180	_	_	_		185	m1		. 1 -			C1-	C1	
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273 275 276 277	Asp	Leu	His 5	Pro	Pro	Glu	His	Gln 10	Va1	Ala	Gly	His	Arg 15	Ala	tcc Ser	l gcc Ala	
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273 275 276 277 279 280 281 283 284 285	agc Ser ctc Leu 35	Leu aag Lys 20 cag Gln	His 5 ccg Pro gcc Ala	ggc Gly ggc Gly	Pro ccg Pro gac Asp	ctc Leu cgt Arg 40	Atc Ile 25 ggg Gly	Gln 10 gac Asp gag Glu	yal ggc Gly cac His	tcc Ser gag Glu	ggc Gly gtc Val 45	ctc Leu 30 gct Ala	15 ttc Phe ttc Phe	tac Tyr tat Tyr	tcc Ser aag Lys gag Glu	gcc Ala ccg Pro gcg Ala 50	154 202
273 275 276 277 279 280 281 283 284 285 287	agc Ser ctc Leu 35	Leu aag Lys 20 cag Gln	His 5 ccg Pro gcc Ala	ggc Gly ggc Gly cac	Pro ccg Pro gac Asp	ctc Leu cgt Arg 40 gcc	His atc Ile 25 ggg Gly	Gln 10 gac Asp gag Glu ccg	ggc Gly cac His	tcc Ser gag Glu	ggc Gly gtc Val 45 atc	tcc Leu 30 gct Ala	15 ttc Phe ttc Phe gac	tac Tyr tat Tyr	tcc Ser aag Lys gag Glu	gcc Ala ccg Pro gcg Ala 50	154
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RAW SEQUENCE LISTING ERROR SUMMARY PATENT APPLICATION: US/10/042,894A DATE: 06/05/2002 TIME: 09:54:25

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#### Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

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Seq#:18; N Pos. 9,15,47,135,230,335,359,403,415,419,450,480,507,509,518

Seg#:19; N Pos. 85,226,277,294,317,331,351 Seq#:30; Xaa Pos. 3,12,14,15,18,25,27

Seg#:31; Xaa Pos. 3,12,14,15,18,25,27

Seq#:32; Xaa Pos. 3,12,14,15,18,25,27 Seq#:33; Xaa Pos. 3,12,14,15,18,25,27

Seq#:34; Xaa Pos. 3,6,7,8,9,10,11,19,25,26,27,28,29,31,34,38 Seq#:35; Xaa Pos. 3,6,7,8,9,10,11,19,25,26,27,28,29,31,34,38 Seq#:36; Xaa Pos. 3,6,7,8,9,10,11,19,25,26,27,28,29,31,34,38 Seg#:37; Xaa Pos. 3,6,7,8,9,10,11,19,25,26,27,28,29,31,34,38